

ATTITUDES OF REGISTERED NURSES, ALLIED HEALTH PROFESSIONALS, AND  
CLERICAL STAFF TOWARDS MULTI-DISCIPLINARY TEAMWORK IN A PRIMARY  
CARE HEALTH CENTRE

By

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## **Abstract**

Although teamwork is essential for quality care, outcomes based on successful teamwork are seldom achieved in healthcare. Negative attitudes prevent effective teamwork; therefore, it is important to explore attitudes of all members towards multi-disciplinary teamwork.

This research investigated attitudes held by health professionals and staff of the Group Health Centre regarding multi-disciplinary teamwork and investigated if a relationship exists between work experience and attitudes towards teamwork.

A descriptive correlational design was used. Data was gathered using the TeamSTEPPS Teamwork Attitude Questionnaire (T-TAQ). The T-TAQ assesses attitudes towards validated constructs of teamwork.

Team members of the Group Health Centre have positive attitudes towards teamwork. The registered nurses do not have different attitudes compared to their colleagues from other health sciences or staff. However, clerical staff presents differences with respect to the constructs of situation monitoring and communication. There is no relationship between work experience and attitudes. These results have important implications for teams in primary care, specifically, the Group Health Centre.

## **Keywords**

multi-disciplinary, multi-disciplinary teamwork, teamwork, attitudes, teamwork constructs, situation monitoring, leadership, communication, mutual support, team structure

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## **Attitudes of Registered Nurses, Allied Health Professionals, and Clerical Staff towards Multi-Disciplinary Teamwork in a Primary Care Health Centre**

### **Chapter One – Introduction**

Effective teams in healthcare have been linked with optimal patient outcomes (Kalizch, Weaver & Salas, 2009). In particular, multi-disciplinary teams in health care often function under the same organizational umbrella providing a range of health care services. Multi-disciplinary teams refers to a range of health professionals and staff working together to address as many patient's needs as possible for optimum functioning and improved health outcomes (Mitchell, Tieman & Shelby-James, 2008). Powell-Davies et al. (2006) describe multi-disciplinary in primary care practice as a concept to strengthen public health function using medical and non-medical professionals. Interest in multi-disciplinary teamwork in primary care has increased in the last decade because of a shift from providers of services to a greater focus of client-centeredness. One of the factors identified as a major influence on effective multi-disciplinary health teams is the attitude of individual team members toward teamwork (Tosi & Mero, 2003). Based on the influences of this concept, it is important to understand the attitudes of health professionals and staff who are part of multi-disciplinary health teams.

#### ***Problem Statement***

Previous research has found that effective health teams improve professional relationships, increase efficiency and co-ordination, and, ultimately, enhance patient outcomes (Freeth, Hammick, Reeves, Koppel, & Barr, 2005; Reeves & Freeth, 2002). Although effective multi-disciplinary teamwork is essential for patient safety and quality care, successful teamwork and related positive outcomes are seldom achieved in healthcare (Kalizch, Weaver & Salas, 2009). Health professionals bring their own personal and professional cultures to the work setting; therefore, approaches to service delivery vary (Almas & Odegard, 2010). Professional cultures include political and economic structures, ideas, thoughts, and values; combining cultures can lead to dysfunctional healthcare teams which may have led to negative patient outcomes (Hall, 2005).

Since negative and/or competitive attitudes towards multi-disciplinary teamwork stand as barriers to optimal patient outcomes, understanding the attitudes of all members of the team

towards teamwork is important (Tosi & Mero, 2003; Bourbousson, Poizat, Saury & Seve, 2010). Rowan (2008) reports that health professionals communicate differently than clerical staff because they conceptualize the patient differently; these perspectives emphasize the importance of understanding the attitudes of all team members towards multi-disciplinary teamwork including the attitudes of nurses, clerical staff and other healthcare providers. As Orchard (2010) explains, nurses make up the largest body of health professionals; yet, they are often criticized for their lack of commitment to teamwork (Miers & Pollard, 2009). Given this, identifying the attitudes of nurses about teamwork compared to those of team members from other disciplines is important. These attitudes may impact the quality and safety of patient care (Tosi & Mero).

### ***Statement of Purpose***

The purpose of this research was to investigate the attitudes held by multi-disciplinary team members of a primary care health centre regarding teamwork. The attitudes of registered nurses were compared to those of the rest of the sample to determine if there was a significant difference. Furthermore, the relationships between certain variables such as work experience and attitudes towards multi-disciplinary teamwork were examined.

### ***Research Questions***

The study explored the following questions:

1. What are the attitudes of healthcare professionals, including; nurses and all other staff who are involved in patient care towards multi-disciplinary teamwork in a primary care health centre?
2. Is there a significant difference between the attitudes of registered nurses and the attitudes of the rest of the sample towards multi-disciplinary teamwork?
3. Is there a relationship between number of years worked in a discipline/profession and number of years worked in the respective discipline/profession at the Group Health Centre and attitudes towards multi-disciplinary teamwork?

### ***Significance to Nursing***

According to Lemieux-Charles and McGuire (2006), multi-disciplinary teams are widespread in healthcare organizations. In particular, they are used to improve care and enhance quality of life. Multi-disciplinary teams are significant to nursing because of nurses' role in primary healthcare and community-based care which involves multi-disciplinary collaboration and consultation. Schoen et al (2009) states that multi-disciplinary care is common in primary care settings.

Registered nurses and other health professionals are crucial to multi-disciplinary health teams because of their skill in situating patients at the centre of care, their closeness to patients, and their role in connecting patients with other health services (Phillips, 2009). Proenca (2007) states that a broad spectrum of professional knowledge and administrative expertise is needed to provide high-quality care; however, if registered nurses or other health team members have negative attitudes towards multi-disciplinary teamwork, the risk of teamwork breakdown increases. Outcomes of breakdown in team functioning can include the following: reduced team effectiveness, increased stress levels, an increase in errors, and, in some cases, fatal consequences for patients (Bourbousson, Poizat, Saury & Seve, 2010; King et al., 2009).

According to Baker, Krokos and Amodeo (2008), teamwork is based on five constructs: structure, leadership, situation monitoring, mutual support, and communication. Despite growing awareness of the benefits of teamwork, these constructs are not always achieved. The reasons for nurses not realizing these constructs have been attributed to different factors. First, for decades, nurses have been trying to establish themselves as a recognized profession and whether nursing is a recognized profession is still questioned in some of the literature (Fawcette, 2000; Orchard, 2010). The battle by nurses to be recognized as an established profession may result in a 'profession-only' rather than a team focus, an attitude which can hinder and even prevent multi-disciplinary teamwork (Tosi & Mero, 2003). Additionally, a professional hierarchy of power often exists within healthcare teams. This hierarchy affects all members of health teams and may result in status differences (e.g., physician and nurses) which hamper communication. Finally, multi-disciplinary teamwork requires dealing with the challenges of human relationships and different attitudes and personalities. Working together can be challenging (King et al., 2009).

The transition from independent practice to professionals working and functioning as a team has resulted in broader and more diverse groups of health professionals and staff working on the front line of care than previously (Goldman, 2010). This shift, however, does not diminish the fact that nursing remain a constant in the delivery of care in the majority of healthcare settings. They provide direct patient care and input into the patient's plan of care which is not based solely on a specific health condition or diagnosis (Eldin, 2004). By comparison, an example of a disciplinary practice based on a specific health condition or diagnosis is a nutritional assessment. In this case, a dietitian becomes part of the patient's care. This model differs from the role of primary healthcare nurses on the frontline of care who are active in many aspects of patient care. Given today's move to a teamwork approach and with nurses making up the largest discipline in healthcare as a constant in healthcare delivery, it is important to know if nurses' attitudes regarding teamwork are different from those of other healthcare professionals. This knowledge may give clarity about the teamwork attitudes of the largest discipline in healthcare. Positive attitudes towards today's healthcare delivery model of multi-disciplinary care will likely result in working as a team to provide optimal patient outcomes.

### ***Conceptual Framework***

The TeamSTEPPS Teamwork Attitude Questionnaire (T-TAQ) used in this study assessed participants' attitudes towards specific core validated constructs of teamwork. The five constructs of teamwork identified in the T-TAQ include the following: structure, leadership, situation monitoring, mutual support, and communication. Baker, Amodeo, Krokos, Slonim and Herrera (2010) provide descriptions of four of the main competencies of teamwork. Leadership is the "ability to direct/coordinate team members, assess team performance, allocate tasks, motivate subordinates, plan/organize and maintain a positive team environment" (p. 2). Situation monitoring (performance monitoring) refers to "tracking fellow team members' performance to ensure that the work is running as expected and that proper procedures are followed" (p. 2). Mutual support (backup behavior) includes "providing feedback and coaching to improve performance or when a lapse is detected" (p. 2). Communication is described as "the initiation of a message by the sender, the receipt and acknowledgement of the message by the receiver, and the verification of the message by the initial sender" (p. 2). While not described by Baker, Amodeo, Krokos, Slonim, and Herrera, team structure is a critical input variable that can

influence team processes; therefore, this construct was included in the item development of the T-TAQ. According to Baker, Gustafson, Beaubien, Salas, and Barach (2005), team structure is the way people are organized to function together. These five constructs form the conceptual framework for this research.

### ***Research Assumptions***

In this study, it is assumed that healthcare professionals and staff in primary healthcare play roles within a multi-disciplinary health team. It is further assumed that structure, leadership, situation monitoring, mutual support, and communication can strengthen healthcare teams and facilitate achievement of optimal patient outcomes. Additionally, it is assumed that the more work experience a person has, the more positive his or her attitude will be towards multi-disciplinary teamwork. A further assumption is that the disciplines and staff represented within healthcare organizations may hold different attitudes towards multi-disciplinary teamwork. Specifically, registered nurses may have more positive attitudes compared to other healthcare professionals and staff towards multi-disciplinary teamwork. It is assumed that registered nurses will recognize the importance that team structure, leadership, situational monitoring, mutual support, and communication have on teamwork outcomes.

Based on these assumptions, investigating attitudes about teamwork held by multi-disciplinary team members in a primary care health centre was determined to be important research. The attitudes of registered nurses were compared to those of the rest of the sample to determine if there was a significant difference. Furthermore, it was postulated to be important to determine if there was a relationship between certain variables such as work experience and attitudes towards multi-disciplinary teamwork.

## **Chapter Two - Literature Review**

Health professionals deliver health and related services pertaining to the identification, evaluation, and prevention of diseases and disorders (The Association of Schools of Allied Health Professionals, 2012). Many health professionals deliver health and related services with a multi-disciplinary teamwork approach because teams improve patient outcomes (Kalizch, Weaver & Salas, 2009). This chapter will define multi-disciplinary health teams and describe research that has been done with health professionals and health professional students in relation to teamwork. The concepts of team structure, leadership, situational monitoring, mutual support, and communication as they relate to teamwork are also discussed.

### ***Multi-Disciplinary Health Teams***

The goal of primary care health teams is to work effectively to improve the delivery of primary and preventative care (Ministry of Health and Long Term Care [MOHLTC], 2007). Primary healthcare includes the following: the delivery of health education; promotion of adequate food, proper nutrition, and sanitation practices; provision of maternal and child healthcare, including immunizations; appropriate treatment of common diseases and injuries; and provision of essential drugs (World Health Organization [WHO], 1998).

The term multi-disciplinary is often used interchangeably with other terms: interdisciplinary, transdisciplinary, transprofessional, and interprofessional. However, it is important to specifically define the context of ‘team’ this research. For the purposes of this research, the term multi-disciplinary is used since it is a term typically used to refer to a range of health services provided to patients by various health care professionals and staff who work in teams in providing optimum patient functioning and improved health outcomes (Mitchell, Tieman & Shelby-James, 2008).

D’amour and Oandasan (2005) state that the main focus of multi-disciplinary teamwork is to integrate knowledge to provide optimal care. A highly competent team in primary health care will have well defined roles, tasks and responsibilities; communication patterns based on professional expertise and patient management needs; effective feedback and goal settings mechanisms; mutual respect and trust (Olupeliyawa, Hughes & Balasooriya, 2009). Simply put, individuals must be able to work together as part of a functioning team.

### ***Effective Team Functioning***

Multi-disciplinary teamwork is sustained by a commitment to a shared set of team goals that include knowledge, skills, and attitudes (Nolte, 2005). Having members from diverse professions on a team is valuable; however, ideological differences and competitive attitudes among members often stand as barriers to effective teamwork (Nolte). The results of effective teamwork include the following: less stress for team members reduced medical errors, and quality of care that is higher compared to the care provided by those who do not work effectively as part of a team. The problem is that multi-disciplinary care often fails in healthcare despite the evidence that it is essential for patient safety and quality care (Kalizch, Weaver & Salas, 2009). Health professionals bring their own personal and professional cultures to the work setting (Almas & Odegard, 2010). Depending on the roles and responsibilities of the particular health professionals, their practical and academic approaches to service delivery can vary (Almas & Odegard). According to Almas and Odegard, professional cultures include political and economic structures, ideas, thoughts, and values. Combining professional cultures can lead to unsuccessful healthcare teams unless the competencies of a successful team are implemented and followed (Almas & Odegard).

Within the literature, there are various studies of what constitutes a team and team effectiveness. Delva, Jamieson and Lemieux (2008) conducted a qualitative study of team effectiveness in academic primary healthcare teams. Nine teams participated and six focus groups were conducted. Residents, secretaries, replacement nurses, nutritionists, social workers, and administrative staff were divided into teams. Two teams were uni-professional (management and nursing), meaning participants in these groups were from the same discipline. The findings indicated that the majority of participants valued teamwork and considered teamwork necessary for getting work done. Participants described effective teams as having a level of comfort between members, communication based on respect, members who pull together in times of greater work demands, a sense of fun, and recognition of members and their contributions. Furthermore, the study revealed that teams struggle. Some team members were unsure about the roles of others and remarked that there was not enough interaction among team members. At the same time, Delva, Jamieson, and Lemieux explain that, as education increasingly incorporates



activities amongst students studying different disciplines, health science graduates are entering the workforce with knowledge about the importance of effective multi-disciplinary teams.

Through an exploratory case-study approach, Goldman (2010) studied perspectives of collaboration and teamwork that affect team effectiveness in primary health-care. A total of 32 interviews were conducted with team members from 14 different primary care settings. Participants included family physicians, nurse practitioners, nurses, dietitians, social workers, pharmacists, and managers. A purposeful sample was used to ensure representation from the different professional groups and settings. The findings were that most of teamwork issues revolved around roles, scope of practice, leadership, time, and early perceptions of collaborative care.

Goldman, Meuser, Lawrie, Rogers, and Reeves (2010) conducted an exploratory case study following the implementation of primary healthcare teamwork protocols as a strategy to promote an evidence-based teamwork approach. Thirty-six interviews were conducted with health professions who participated in the creation of the teamwork protocols. Findings from the protocol development stage emphasized the value of evidence, assessing team needs, information sharing, and team support. Findings from the pilot stage of the study highlighted the importance of leaders, implementation strategies, and organizational factors affecting implementation. The teamwork protocols did have some impact on the team members including enhanced knowledge and awareness of evidence and team issues, initial efforts to address team roles, work processes, and changes in practices such as improved patient screening.

Individual experiences of working as part of multi-disciplinary team have also been studied. Researchers Hansson, Friberg, Segesten, Gedda, and Mattsson (2008) used a qualitative approach and interviewed nine general practitioners who had experience with long-lasting multi-disciplinary teams. These general practitioners were in favor of teamwork; however, there were concerns around time-consuming versus time-saving realities; shared responsibility versus main responsibility; the medical expert versus the generalist; and shared knowledge versus all-knowing situations. The researchers concluded that, apart from time, teamwork requires professional supervision, and that doctors need to be trained in interprofessionalism as early as medical school.

Cartmill and Soklaridis (2010) also used a qualitative approach to explore the experiences of health professionals working as part of a team to provide a transdisciplinary model of care in a restoration program. They have explained that “a transdisciplinary approach includes the same elements as an interprofessional approach; however, each team member becomes so familiar with the roles of other team members that the tasks become to some extent interchangeable” (p. 2). In-depth interviews were conducted with clinicians from physiotherapy, occupational therapy, kinesiology, cognitive behavioural therapy, medicine, psychology, the return to work program, resource specialties, and customer service. Cartmill and Soklaridis found that multi-disciplinary teamwork is advocated for primary care, mental health, oncology, education, gerontology, and rehabilitation. For chronic disabling musculoskeletal pain, however, a transdisciplinary approach is preferred because the patient has complex needs and requires expertise from multiple providers.

Teamwork can become challenging because of attitudinal differences (Nolte, 2005). The efforts by team members in relation to communication, cooperation, and help the team to remain focused on the main goal can improve team effectiveness. Understanding attitudinal differences and challenges can relieve some barriers and may result with effective teamwork (Tosi & Mero, 2003).

### ***Attitudes and Multi-Disciplinary Teams***

A key characteristic of multi-disciplinary health teams, according to Tosi and Mero (2003), is positive attitude. Allport (1935) was one of the first psychologists to define attitudes in a behavioural context. His definition is still referenced in the literature today. Allport defined attitudes as “a mental and neural state of readiness, organized through experience exerting a directive or dynamic influence upon an individual’s response to all objects and situations with which it’s related” (p. 801).

Tosi and Mero (2003) explain that attitudes can be understood more easily if they are viewed as components and dynamics. These authors have stated that attitudes are tied to values and beliefs; therefore, they precede intentions to behave and the actual behaviour. The common way to refer to attitudes is to say they are “good” or “bad” or “positive or “negative.” However, it is not accurate to say that someone has a good attitude or a bad attitude without specifying an

identifiable object (Tosi & Mero). Attitudes always apply to some identifiable object. For example, they exist in relation to something or someone: work, the government, other people, etc. The values, beliefs, and emotional associations in relation to the object, person, or experience will reveal a like or dislike demonstrated through a behavioural response (Tosi & Mero, 2003). The Association for Educational Communications and Technology (AECT) (2001) has stated that the behavioural component of an attitude involves the person's overt behaviour toward a situation, object or person(s). The behavioral aspects of attitude enable people to draw inferences about an individual's attitude. By observing what a person says or does, something about the person's attitude can be discerned (AECT).

Attitudes can and do change (Tosi & Mero, 2003). Situational stimuli or events influence attitudes and behaviors (AECT, 2001). Behaviourists argue that a change in attitude occurs as a result of actions that have been influenced by reinforcers (AECT). According to social-learning theorists, however, it is not essential to learn behaviours through reinforcements, as behaviorists would impose; rather, direct and indirect learning as well as verbal instruction are powerful impacts on attitudes and behaviours (AECT).

Looking at interprofessional education (IPE), Curran, Sharpe and Forristall (2007) have stated that IPE is essential to the development of positive attitudes in the context of teamwork. Curran, Sharpe, Flynn, and Button (2010) conducted a study to evaluate the longitudinal effect of the introduction of an IPE curriculum on students' attitudes towards IPE and teamwork. A time series study was conducted with undergraduate health and human service professional students. The study took place over a three-year period and involved repeated administration of evaluation instruments including an attitudinal survey, the Attitudes towards Interprofessional Healthcare Teams Scale, and a satisfaction survey. Findings about attitudes towards IPE varied greatly among the different disciplines. Specifically, nursing and medical students reported significantly lower scores than students from other professions.

Other researchers (Curran, Sharpe, Forristall & Flynn, 2008; Leipzig et al., 2002) have studied attitudes towards interprofessional teamwork. Firstly, Curran, Sharpe, Forristall and Flynn used a quantitative approach to identify attitudes towards interprofessional teamwork and education. A survey was distributed to students from medicine, nursing, pharmacy and social work programs.

Secondly, Leipzig et al. used a quantitative approach to identify attitudes towards interprofessional teamwork among medical students, graduate level nursing students, and graduate level social work students. Findings from both studies are similar: health science students and graduate students across professions report positive attitudes towards healthcare teamwork. Curran, Sharpe, Forristall and Flynn additionally reported that medicine and nursing students have less positive attitudes than students from pharmacy and social work. Female students and senior undergraduate students reported significantly more positive attitudes. Students reporting prior experience with IPE reported significantly more positive attitudes towards teamwork than other students. Profession, gender, and year of study are attributes which were related to more positive attitudes.

Curran, Sharpe, Flynn and Button (2010) indicate that education can change individual attitudes; however, as Tosi and Mero (2003) point out, an attitude does not exist in isolation regardless of the degree of teamwork focused education. For example, an individual will not have an attitude towards multi-disciplinary teams without linking the attitude to the work itself, co-workers, the work environment, and so forth. Work experience becomes significantly important in teamwork.

Baker, Amodeo, Krokos, Slonim and Herrera (2010) determined the competencies required of individual healthcare providers for effective teamwork. A national panel of experts on human factors and team training was initiated. The needs, requirements, and strategies for effective teamwork in healthcare were discussed and the core constructs of teamwork were identified: team structure, leadership, mutual support, situation monitoring, and communication. The T-TAQ measures attitudes towards these five core validated constructs of teamwork.

**Team structure.** Establishing team structure is the first step in implementing a team in any environment. Team structure is the arrangement of a team's composition (Healey, Undre & Vincent, 2005). These authors explain that, before any team can function effectively, there needs to be structure. With proper team structure, teams can learn how to create an environment based on commitment, collaboration, mutual accountability, acknowledgement, and professional respect. Furthermore, team structure is often described as the glue that holds together the strategy to provide quality and safe healthcare. Ambiguity, however, is often problematic in relation to team structures because it can lead to disagreements about authority, task allocation, and roles

and responsibilities (Healey, Undre & Vincent). For some tasks, a hierarchical team structure is an acceptable composition and may be valuable in preventing disagreements. For example, if teaching and learning is the goal rather than an exercise of power, a hierarchical structure may be appropriate. Teamwork without a structure that is understood and supported by all members often results in communication failures and decreased quality health- care (Lingard et al. 2004).

Lingard et al. (2004) conducted a study to determine the degree of ineffective communication in an operating room for which there was no structure among the team. Through use of a framework, communication was analyzed for purpose, content, audience, and occasion of the exchange. Trained observers recorded 90 hours of observation during 48 surgical procedures. In all, there were a total of 98 observed team members from the disciplines of anesthesia, nursing, and surgery. Findings indicated that communication failures were due to poor timing, content issues, missing information, and audience problems including the exclusion of key stakeholders. Ineffective communication occurred in 30% of verbal exchanges and a third of these situations jeopardized patient safety.

According to Tosi and Mero (2003), without team structure, components of an effective team, such as effective communication and collaboration rarely exist. Team structure forms the connection between attitudes and behaviours. Structure supported by the members of a team can contribute to positive attitudes towards teamwork (Tosi and Mero, 2003).

**Leadership.** Leadership has often been defined in terms of behaviours found in administrative positions. Baker, Amodeo, Krokos, Slonim and Herrera (2010) define leadership as “the ability to direct/coordinate team members, assess team performance, allocate tasks, motivate subordinates, plan/organize and maintain a positive team environment” (p. 2). In healthcare, leadership is about change that focuses on quality care (Kumar, 2013). Kumar states that effective leadership among healthcare teams is the key driver in the entire healthcare sector. Quality improvement in healthcare often fails because of a resistance to change among health-care teams.

Dysvik and Furnes (2012) conducted a study exploring nursing leadership on two levels: overall organizational and group levels. The setting for the study included rehabilitation groups for people suffering from pain. The sample included one overall leader and nine group leaders

responsible for conducting 13 groups. Qualitative content analysis was used to identify categories and themes. The results indicated that leadership is complex from group levels to organizational levels. The results suggest the importance of firm overall leadership and trained group leaders, a common goal, interdependent roles, and complementary skills. All leaders must be prepared to prevent and deal with challenging group process. Thus, leadership is an important construct because, with effective leadership, multi-disciplinary team members learn the importance of process changes, understand the roles of others, maintain positive attitudes, and facilitate improved patient outcomes (Baker, Amodeo, Krokos, Slonim & Herrera, 2010).

**Situation monitoring and mutual support.** Baker, Amodeo, Krokos, Slonim and Herrera (2010) define mutual support as “providing feedback and coaching to improve performance or when a lapse is detected” (p. 2). They expand on this definition by stating that completing a task for another team member because of work overload is a form of mutual support. Mutual support though is not a form of backing up a team member’s performance (Sen Cao, Volz & Miller, 2005). When someone completes a task because another team member fails to accomplish an action, this is backing up behavior and is not a component of effective teamwork (Sen Cao, Volz & Miller, 2005).

Situation monitoring typically results in a form of mutual support. Baker, Amodeo, Krokos, Slonim and Herrera (2010) stated that situation monitoring is observing the work of other team members. The feedback and/or training resulting from monitoring behaviours are forms of mutual support. Kogan et al. (2012) conducted a study to determine the factors which influence feedback decisions and delivery of feedback by medical faculty to residents after observing them with patients. Forty-four general internal medicine faculty staff participated in the study. Each faculty member watched four videos and two live cases of a resident taking a history and performing a physical. Each faculty member was interviewed by at least three trained study investigators to determine the following: what the resident did well and did not do so well, type of feedback to give the resident, feelings about giving the feedback, and so forth. These authors concluded that medical educators struggle with how to provide feedback; however, if there is an understood common goal, feedback feels like part of the process for teamwork effectiveness rather than about the process of a task.

Situation monitoring and mutual support, in healthcare, are about the common goal of optimal patient outcomes (Baker, Amodeo, Krokos, Slonim & Herrera, 2010). Situation monitoring offers education to improve performance while mutual support develops common understandings of a team environment (Baker, Amodeo, Krokos, Slonim & Herrera, 2010).

**Communication.** Effective communication is essential for high quality patient care.

Importantly, it reduces the chances of errors that injure or harm patients (Leonard, Graham & Bonacum, 2004). These authors have pointed out that “communication failures are an extremely common cause of inadvertent patient harm” (p. 85). Furthermore, they explained that delivering patient care requires a team approach; therefore, communication must occur among all members of the team. Several factors have been identified as communication failures. First, different health disciplines are trained to communicate differently. For example, nurses have been trained to be narrative whereas physicians are more concise. Second, hierarchy may inhibit people from effective communication because it can contribute to an environment where people do not feel comfortable to communicate openly. Ellingson (2011) explains that a barrier to effective communication in health teams is insufficient use of formal modes of communication. Some informal modes of communication include face to face conversations, sticky pad notes placed on computer monitors, and paper referrals. More formal modes of communication need to be adapted for effective communication; these strategies include regularly scheduled and documented meetings and case conferences (Ellingson, 2011).

Brock et al. (2013) explain that future health professionals need to be trained in how to work and communicate within multi-disciplinary teams in order to minimize barriers to effective communication and, ultimately, reduce medical errors and negative health outcomes. These authors conducted a study to determine if communication training affects communication behaviours. The Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS) communication training model was used with 364 medical, nursing, pharmacy, and physician assistant students. These students were provided a didactic session as well as team simulation and feedback sessions. Findings revealed that TeamSTEPPS communication training resulted in positive attitudinal and knowledge effects in relation to communication among health teams. Thus, communication was determined to be a contributor to positive attitudes because team members are likely to feel informed, understand the roles of other team members, and have

opportunities to share their opinions when communication is healthy (Baker, Amodeo, Krokos, Slonim & Herrera, 2010).

### ***Attitudes and Work Experience***

Work experience can change individuals' attitudes about their work (Tosi & Mero, 2003).

Cambridge Dictionaries (2011) defines work experience as the experience a person already has of working. This simple definition focuses solely on what an individual has already lived through related to work. People express values through their attitudes; therefore, if values change, attitudes can as well. If employees are happy and productive, they are likely to hold favorable values about their organization and particular roles in addition to positive attitudes. As events change within an organization, attitudes will often change according to whether the individual is in agreement with the change or not. As time elapses and the individual gets more experience in the environment in which the change has occurred, attitudes may change again depending on whether the individual has achieved personal adjustment or lost values due to the change (Tosi & Mero, 2003).

There is a gap in the literature in relation to the relationship between work experience and attitudes. George and Jones (1997) described a model (the VAM model) which incorporates work values, attitudes, and moods which they described as the most significant dimensions of work experience. The VAM model supports the idea that attitudes are influenced by work experience. In this context, attitudes are described as knowledge structures. Work attitudes are knowledge structures because, as people do their jobs and experience work life, they gain opinions and feelings about their work and organization. These opinions and feelings are stored and organized in memory (George & Jones). The authors explained that, as people gain more experience, more knowledge structures are developed. These knowledge structures or work attitudes organize how people think about their work which, in turn, influences all subsequent experiences.

### ***Nurses and Multi-Disciplinary Teamwork***

According to Miers and Pollard (2009), nurses feel that they are central to health teams because of their skill in putting patients at the centre of care, their closeness to patients and services, and their role in co-ordination (Miers & Pollard, 2009). These authors report that the challenges for



nurses in multi-disciplinary teams are their communication and collaboration skills.

Collaboration in healthcare is a complex process involving two or more health professionals planning, implementing, and evaluating care (Smith, Lavoie-Tremblay, Richer & Lanctot, 2010). Communication and collaboration are often affected by organizational factors; nurses must understand organizational structure to avoid barriers in communication and to avoid damaging relationships with other professionals and patients (Miers & Pollard, 2009). All disciplines must focus on collaborative, patient-centered approaches to patient care (Orchard, 2010). Through codes of ethics and standards for practice, nursing has sought for decades to establish itself as a recognized profession (Orchard, 2010). While a profession-only focus does not nourish an interprofessional team, clarity of roles within different health professions is important (Orchard, 2010).

Researchers Smith, Lavoie-Tremblay, Richer and Lanctot (2010) conducted a descriptive study including semi-structured interviews with eight nurses in order to explore their perceptions of the organizational factors that influence the development of collaborative relationships in healthcare teams. Results of the study indicate that the communication and collaboration efforts of nurses within healthcare teams are often inhibited and criticized because of time limitations. Well-coordinated activities and discussions need an adequate amount of time which nurses are not always able to balance because of the demands of their role. Other authors have found that time is a barrier to effective teamwork for nurses (Hansson, Friberg, Segesten, Gedda & Mattsson, 2008). Finlayson and Raymont (2012) looked at teamwork among nurses and general practitioners in New Zealand. These authors reported that nurses and general practitioners work separately with brief interactions to ensure accurate information transfer.

According to Orchard (2010), “the nurse is one of the key individuals in all teams” (p 254). This statement emphasizes the importance of nurses in healthcare teams. If nurses clearly articulate their role within healthcare teams, then the identity of the professional will be maintained while they communicate and collaborate successfully as team members.

### ***Literature Gap***

Various academic disciplines are starting to incorporate teamwork activities into their curricula while some institutions are delivering complete multi-disciplinary education programs. This

trend has resulted in research into the attitudes of undergraduate health science students relative to teamwork. Researchers Curran, Sharpe, Flynn and Button (2010) reported that nurses generate significantly lower scores on measures of attitudes towards multi-disciplinary education than professionals from other health disciplines. While an important finding, it cannot be generalized to multi-disciplinary teamwork in primary healthcare. It has also been documented that time is a barrier to effective multi-disciplinary teamwork for nurses; however, little research exists on the attitudes of nurses regarding teamwork and how their attitudes compare to those of allied health professionals and clerical staff in primary healthcare.

Based on the above gaps, the purpose of this research was to investigate attitudes about teamwork among multi-disciplinary team members in a primary care health centre. The attitudes of registered nurses were compared to those of the rest of the sample to determine if there was a significant difference between the attitudes of the two groups. Additionally, number of years in the discipline/profession and number of years worked in the discipline/profession specifically at the targeted Group Health Centre was examined to determine if there was a relationship between work experience and attitudes towards multi-disciplinary teamwork.

### **Chapter 3 - Methodology**

The goal of primary healthcare teams is to work effectively in order to improve the delivery of primary and preventative care (Ministry of Health and Long Term Care [MOHLTC], 2007). Tosi and Mero (2003) have explained that a key characteristic of health teams is positive attitudes. The attitudes of registered nurses and other healthcare professionals as well as clerical staff towards interprofessional teamwork are largely unknown. This study explored the following research questions:

1. What are the attitudes of healthcare professionals, including; nurses and all other staff who are involved in patient care towards multi-disciplinary teamwork in a primary care health centre?
2. Is there a significant difference between the attitudes of registered nurses and the attitudes of the rest of the sample towards multi-disciplinary teamwork?
3. Is there a relationship between number of years worked in the discipline/profession and number of years worked in the respective discipline/profession at the Group Health Centre and the attitudes towards multi-disciplinary teamwork?

This chapter will describe how the research questions were examined with emphasis on the design of the study, the sample, and the setting for the research. This chapter also reviews the recruitment processes of multi-disciplinary team members in a primary healthcare centre in order to investigate their attitudes about multi-disciplinary teamwork. The instrument used in the study will be discussed as well as how the data were analyzed and managed.

#### ***Research Design***

A descriptive correlational design was used in order to describe attitudes about interprofessional teamwork and to compare nurses' attitudes to those of the rest of the sample. Data were gathered through the use of a survey delivered to participants in an online format.

### ***Setting***

The setting for this research was the Group Health Centre located in Sault Ste. Marie, Ontario. The Group Health Centre is Ontario's largest and oldest not-for-profit membership-based healthcare organization. Since 1963, the Group Health Centre has grown substantively in order to meet the health care needs of residents in Sault Ste. Marie and the Algoma district. The success of this unique collaborative entity is due to the willing cooperation of the Algoma District Medical Group and the Group Health Association. Together, these two independent partners are responsible for providing and/or arranging comprehensive quality healthcare services for over 60,000 rostered patients. The Group Health Centre employs an array of healthcare professionals from a variety of disciplines (Group Health Centre, 2012). A total of 414 individuals are employed by the Group Health Centre; 116 of the staff are clerical staff, 120 nurses, and 178 allied health care professionals. Along with primary care consults, many clinical programs are offered. They include but are not limited to counseling, physiotherapy, chiropody, respiratory therapy, and diabetic care.

### ***Sample***

Potential participants included all healthcare professionals working within the Group Health Centre as well as clerical staff and information technology (IT) experts. IT and clerical support staff are examples of groups of people who are not necessarily part of a health discipline but who contribute to the goals of optimal patient care and outcomes. Proenca (2007) commented that clerical expertise is essential in delivering high quality patient care. Bates and Bitton (2010) explained that excellent IT support and high-quality healthcare are closely linked because high-efficient IT departments have been linked to improved clinical outcomes. IT support helps manage the technology tools to make tasks and activities easier for health professionals and staff. For these reasons, clerical and IT experts were included in the sample for this study.

Of the individuals employed by the Group Health Centre, the financial analyst, payroll clerk, privacy officer, graphics technician, trust fund director, scheduling coordinator, business analyst, and the systems architect were excluded from the sample. Their exclusion was due to their lack of involvement with patient care. Although ethical approval was obtained from Laurentian University's Research Ethics Board with the understanding that approval from a reputable ethics

committee was sufficient to proceed and to gather data from all members of the Group Health Centre including physicians, there was no physician participation in this research. Physicians were not eligible to participate unless ethics approval was granted specifically from the joint Group Health Centre and Sault Area Hospital ethics committee. Due to time restrictions, ethical approval from the joint Group Health Centre and Sault Area Hospital ethics committee was not obtained. A total of 95 allied health personnel and health professionals participated in this study.

### ***Recruitment and Ethics***

After receiving ethical approval from Laurentian University's Research Ethics Board (Appendix C) every healthcare professional working at the Group Health Centre, including clerical staff and information technology experts, received a personally addressed email inviting him or her to participate. The email message explained why the person was selected, the usefulness of the survey, practices of confidentiality and anonymity, and the voluntary nature of participation. Contact information for the researcher was also provided. The email had a clickable link for access to the survey that participants were able to complete electronically (Appendix A). Two weeks from the date of this email, a hardcopy letter was distributed with the identical information as found in the email. Rather than having a clickable link to the survey, the letter provided the web address to access the survey. The purpose of sending the invitational letters in hardcopy format was to capture workers who do not regularly access email.

### ***Research Variables***

The attitudes of health professionals and clerical staff towards teamwork, the key variable in this study, were measured using the T-TAQ survey. This survey measures attitudes toward team structure, leadership, situational monitoring, mutual support, and communication.

Relevant demographic data were also gathered. These items included the following: discipline and profession, number of years worked in the discipline/profession, and the number of years worked in the respective discipline/profession at the Group Health Centre. These variables were tracked by way of questions included in the socio-demographic section of the T-TAQ survey.

### ***Instrument***

The TeamSTEPPS Teamwork Attitude Questionnaire (T-TAQ) was used to measure the attitudes of nurses and other members of the multi-disciplinary team including allied health professionals and clerical staff (Appendix B). TeamSTEPPS, which stands for Team Strategies and Tools to Enhance Performance and Patient Safety, is a training program that was developed for the United States Department of Defense by Baker, Krokos, and Amodeo (2008) to improve teamwork. The United States Department of Defense has federal leaders in the patient safety movement, and supports research and development activities that target improved team performance in the delivery of care. The TeamSTEPPS program is an evidence-based, modifiable program intended to build team skills, based upon five validated constructs (Clancy & Tornberg, 2007; King et al., 2009; Baker, Amodeo, Krokos, Slonim, & Herrera, 2010; Bethany, Kaplan, Atallah, Higgins, Lewitt, & Ander, 2010).

It became apparent to leaders who were implementing the TeamSTEPPS program that a measure of the participants' attitudes about teamwork before team training would be valuable in determining specific areas to focus the program. In addition, information about changes in attitudes before and after interventions would be one measure to evaluate the effectiveness of team training (Baker, Amodeo, Krokos, Slonim, & Herrera, 2010). Thus, the T-TAQ was designed to measure individual attitudes about teamwork.

Content validity was built into the T-TAQ development process through a test specification process whereby items were written according to the validated core constructs (Baker, Krokos & Amodeo, 2008; Baker, Amodeo, Krokos, Slonim, & Herrera, 2010). Items were developed through an extensive item-writing process that included multiple item writer experts who were experienced in questionnaire and test development. An item review was then conducted to ensure appropriate wording and to address concerns about social desirability. For example, the phrase "it is important to" may trigger a positive response (Baker, Krokos & Amodeo, 2008). The final draft of items was 64.

The survey was pilot tested with 346 participants from different units within a hospital as well as with 149 health professionals at a health conference. Classical item statistics were used to determine the final T-TAQ items. The mean score, item-total correlations and standard

deviations were computed. Final items selected were those that met the criteria of a item-total score of 0.30 or higher as well as those that contributed to a reliability score of 0.70 or higher (Baker, Amodeo, Krokos, Slonim, & Herrera, 2010). The final T-TAQ questionnaire consists of 6 questions in each of the 5 constructs. The survey developers acknowledge that further testing is required, including a factor analysis and testing with larger sample sizes. However, they indicate that the final T-TAQ “can be used to diagnose existing attitudes towards teamwork in a system, hospital, or unit (Baker, Amodeo, Krokos, Slonim, & Herrera, 2010, p. 3)”, which is congruent with the objective of this study.

Final numbers of items within each construct and their reliability scores of each are provided in Table 1.

**Table 1**

*T-TAQ Reliability Constructs*

Construct	Number of items	Cronbach alpha
Team Structure	6	.70
Leadership	6	.81
Situation Monitoring	6	.83
Mutual Support	6	.70
Communication	6	.74

The survey uses a Likert scale and includes a total of 30 items with 6 items for each teamwork construct. Items 20, 21, 24, and 30 are reverse-coded items. Pearson correlation coefficients among the constructs ranged from .36 (mutual support and team structure) to .63 (situation monitoring and communication). Item analysis demonstrated that while the constructs overlap to some degree, they exhibit unique variance. For T-TAQ scoring, a total score may be calculated for each teamwork construct or an average score may be derived. As an independent assessment of teamwork attitudes, the T-TAQ may be administered at any point in time. The survey may be administered to an organization, unit, or a combination of units or departments.

Baker, Krokos, and Amodeo (2008) stated that the reliability and validity of the instrument will be affected if any item is changed or modified. No changes or modifications were made. However, sociodemographic and background questions regarding gender, current job, and work experience were included. Baker, Krokos, and Amodeo also stated that it is best for organizations to customize their own sociodemographic questions when there are studies being conducted within specific organizational settings.

### ***Demographic Survey***

The following demographic questions were asked in addition to the T-TAQ survey tool: 1) What is your gender? 2) Please indicate your discipline/profession. 3) How many years experience do you have in your discipline/profession? And 4) How many years experience do you have in your discipline/profession at the Group Health Centre? The University of Texas (2009) states that demographic questions are used as a method to identify characteristics which allows comparisons to be made. The demographic questions asked in this research were used as variables to compared attitudes towards interprofessional teamwork. It was decided to exclude gender because most of participants were female (91.6%).

### ***Data Collection***

As noted, the email sent to participants had a clickable link through which questions were accessed. All data were submitted through the electronic survey. Each response was mapped to a specific data field within a database table. The data were accessed by the researcher who used an export routine which copied the data from the MySQL database into an MS Excel spreadsheet. The data were then transferred into SPSS for analysis.

### ***Data Management***

The survey used to collect data was delivered as an electronic web-based survey. The survey was created in the PHP programming language and used a MySQL database server for storage. The survey was delivered to individuals using an Apache web server on a Windows XP Professional computer that is locked in a server room within the Group Health Centre information technology department. These servers are backed up both onsite and offsite.



### ***Pilot Test***

Before recruitment began, testing of the survey was performed. Thirty surveys were completed with pseudo data entered into the system and manually on paper. The 30 submissions required different answers, ensuring that all answers were selected at least once. The data from the 30 electronic submissions were compared to the manually completed surveys to check for accuracy. Discrepancies between the manual and electronic results were investigated and fixed, and the testing was repeated until there were no discrepancies.

### ***Data Entry and Cleaning***

The use of an export routine eliminated manual data entry. The survey performed point-of-entry validation and ensured that mandatory information was entered properly by the participant before survey submission; therefore, there were no missing data. Data cleaning was not required.

### ***Protection of Human Subjects***

The research proposal received approval from Laurentian University's Research Ethics Board. The proposed research did not pose any risk to the participants although there was a minor inconvenience of time required to complete the survey. The recruitment strategy included an email that explained why the participant was selected, the usefulness of the survey, confidentiality and anonymity strategies, and withdrawal considerations. Recipients were advised that participation was entirely voluntary and that they could withdraw at any time without consequence. As well, the survey could be accessed solely through a computer connected to the Group Health Centre network. The researcher was the only user with the password for accessing the submitted data. The information technology department has access to all systems on the organization's network as they are the primary technicians for the organization; however, IT staff did not have access to the survey which was password protected. The survey did not track identifiers such as the participant's username or computer name/IP address.

The computer holding the data was located in a secure environment that houses many other databases holding sensitive data; therefore, it inherits the security mechanisms and regulations already in place. Anyone who has access to the server has signed and agreed to the confidentiality agreement and complies with the policies and procedures of the Group Health

Centre. The data will not be deleted at the end of the study in the event of further writing. If the data has not been used one year after the completion of the study, the data will be destroyed by undergoing a terminal deletion process from the server.

### ***Analysis***

Descriptive statistics were generated to present the sociodemographic data (gender, number of years worked in the specific discipline/profession and the number of years worked in the discipline/profession specifically at the Group Health Centre).

The survey is designed as a Likert scale tool with possible answers ranging from one (strongly disagree) to five (strongly agree). A minimum total score for each construct is six while a total maximum score for each construct is 30; therefore, the best score for someone with a positive attitude towards a construct is 30. Four items were reverse coded as per the instructions of the developers of the survey (Baker, Krokos & Amodeo (2008). The minimum, maximum, and mean scores for each construct were determined. A total score was calculated for the survey as a whole and for each teamwork construct. Total scores were not on a normal curve (normally distributed); therefore, the t-test was not used to determine statistical significance (University of Nebraska-Lincoln, 2012). The Mann Whitney U, Wilcoxon W, and Z-tests were used to compare differences between the groups.

The correlations between the total scores of the survey and the scores of each of the team work constructs were compared to number of years worked in the specific discipline/profession and number of years worked in the discipline/profession using Pearson R testing. The results of the analysis are presented in the following chapter.

## **Chapter Four - Results**

The purpose of this descriptive correlational design was three-fold: 1) to determine the attitudes of health team members about multi-disciplinary teamwork in a primary care health centre (Group Health Centre), 2) to determine if there was a significant difference between the attitudes of registered nurses and the attitudes of the rest of the sample, and 3) to examine the relationship between attitudes and number of years worked in the discipline/profession as well as attitudes and number of years worked in the discipline/profession specifically at the Group Health Centre. The value of p value for this research is 0.05 to justify a statistically significant effect. Study findings are presented below.

### ***Demographic Characteristics***

A total of 97 surveys were completed. Two surveys were removed from analysis because, in the demographic section where participants were asked to indicate their discipline/profession from a drop-down list, the option of 'other' was selected with the description of "nurse" being indicated. These participants should have selected 'registered nurse' or 'registered practical nurse' from the drop down list. Not knowing if these participants were registered nurses or registered practical nurses resulted in the exclusion of these two surveys. Thus, the response/participation rate was 29% (95 of the potential 330 participants). According to the University of Texas (2009) a good response rate for surveys administered both via email and mailed is 40%. If these response rates are not reached, the research is valuable for insight but not generalizable for larger populations. Nulty (2008) states that the average response rates for online surveys is 33%.

When determining how many participants are needed to generate results that reflect the target population as precisely as possible, the power of 0.80 is regarded to be the minimal value to support an adequate sample size (Eng, 2003). In all, the sample size was 95 resulting in a power calculation of 0.83.

The demographic characteristics of the 95 study participants are provided in Table 2. The majority (91.6%) of the sample was female. A total of 17 different disciplines/professions were represented. Clerical workers made up the largest percentage (23.2%) while registered nurses made up the next largest group (22.1%). There were ten (10.5%) registered practical nurses and eight (8.4%) information communication technology experts. All other disciplines (Table 2) had

five or fewer participants. The number of years worked in a specific discipline/profession ranged from two years to 42 years with a mean total of 19.4 years. The total years of experience of work with the Group Health Centre ranged from one to 29 years with a mean total of 9.9 years.

**Table 2**

*Sample Characteristics and Gender*

	N	%			
Female	87	91.6			
Male	8	8.4			
Total	95	100			
<i>Disciplines/Professions</i>					
	N	%			
Clerical	22	23.2			
Registered Nurse	21	22.1			
Registered Practical Nurse	10	10.5			
Information Technology	8	8.4			
Nurse Practitioner	5	2.3			
Social Worker	5	4.3			
Other	24	29.2			
Total	95	100			
<i>Discipline/Profession Experience</i>					
	N	Min	Max	M	SD
Total years of experience	95	2	42	19.4	10.6
Experience at GHC	95	1	29	9.7	7.2

**Research question 1.** The first research question was the following: “What are the attitudes of the healthcare professionals including; nurses and all other staff who are involved in patient care towards multi-disciplinary teamwork in a primary care health centre?”

Based on the tool, the possible range for total scores is between 30 and 150. Higher scores show positive attitudes towards interprofessional teamwork. In this study, the minimum score was 52; the maximum score was 149. The standard deviation was 14.6 and the mean score was 127.7.

The total score range for each construct of the T-TAQ is between six and 30. The mean total score for all participants for “situation monitoring” was 24.6; “mutual support” 25.6; “communication” 25.1; “leadership” 26.9; and “structure” 25.6. Descriptive details for each construct are summarized in Table 3.

**Table 3**

*Total Scores*

	N	Min	Max	M	SD
Situation Monitoring	95	11	30	24.6	3.4
Mutual Support	95	12	30	25.6	3.3
Communication	95	11	30	25.1	3.6
Leadership	95	9	30	26.9	3.6
Structure	95	9	30	25.6	3.4

Total scores for each construct was determined for each discipline (Table 4). The mean total scores for clerical staff were lower in most constructs indicating their attitudes are not as positive compared to the rest of the sample. This finding prompted further analysis.

**Table 4**

*Total Mean Scores of Disciplines*

Discipline	Total Scores	Situation Monitoring	Mutual Support	Communication	Leadership	Structure
Registered Nurse	127.7	25.0	25.5	24.9	27.0	25.3

RPN	132.8	26.5	26.3	26.0	28.7	25.3
ICT	125.5	24.8	23.9	24.5	26.5	25.9
Clerical	121.2	22.7	24.9	23.5	25.5	24.7
NP	130.4	25.0	26.4	26.2	26.2	26.6
SW	135.0	26.4	26.6	27.6	27.8	26.6
Other	130.4	24.8	26.2	25.6	27.3	26.4
Total	127.7	24.6	25.6	25.0	26.9	25.6

**Research question 2.** The second research question was as follows: “Is there a significant difference between the attitudes of registered nurses and the attitudes of the rest of the sample related to multi-disciplinary teamwork?” When tested for normality based on the Shapiro-Wilk test, the data revealed a score of  $p = 0.001$  which indicated that the total scores of the sample on the T-TAQ survey deviated significantly from a normal distribution. Because of this, the Mann-Whitney U test was used to analyze the total scores of the registered nurses compared to the scores of the rest of the sample. The result was  $U = 688$ ,  $Z = -.799$ ,  $p = .42$ . Based on this value, there was no significant difference in the total scores of the registered nurses compared to those of the rest of the sample. Additionally, the total scores of the registered nurses were compared with the total scores of the rest of the sample for each construct; no significant differences were found (Table 5).

**Table 5**

*Registered Nurses Compared to Rest of Sample*

	Total Scores
Mann-Whitney U	688
Z	-0.8
p-value	0.43
<i>RNs Compared to Rest of Sample for Each Construct</i>	

	Communication	Mutual Support	Situation Monitoring	Leadership	Structure
Mann-Whitney U	691	762	646	672	758
Z	-0.77	-0.13	-1.18	-0.95	-0.17
p-value	0.44	0.87	0.24	0.34	0.86

Since the mean total scores for clerical staff were lower in most constructs compared to the rest of the sample, the total scores of clerical staff were compared to the scores of the rest of the sample. The total score for Mann-Whitney U was 553; Z was 2.21; and p was .027. When comparing the scores for the clerical staff with those of the rest of the sample for each construct, there was a significant difference between the total scores of the clerical staff and the rest of the sample in two constructs: situation monitoring and communication (Table 6).

**Table 6**

*Clerical Staff Compared to Rest of Sample*

	Total Scores				
Mann-Whitney U	553				
Z	-2.2				
p-value	0.027				
Clerical Staff Compared to Rest of Sample for each Construct					
	Communication	Mutual Support	Situation Monitoring	Leadership	Structure
Mann-Whitney U	537	744	461	600	648
Z	-2.4	-0.53	-3.0	-1.8	-1.4
p-value	0.018	0.06	0.002	0.07	0.17

**Research question 3.** The third research question was “What relationships exist between number of years worked in the respective discipline/profession at the Group Health Centre and attitudes towards multi-disciplinary teamwork?” The correlations between the total scores and the scores for each construct were compared for both variables using Pearson R testing. There were no significant correlations between these variables and attitudes towards interprofessional teamwork (Table 7).

**Table 7**

*Correlations between Number of Years Worked and Teamwork Constructs*

	Total	Communication	Mutual Support	Situation Monitoring	Leadership	Structure
r-value	-0.053	0.34	-0.046	0.037	0.335	0.460
p-value	0.611	0.741	0.659	0.721	-0.100	-0.077
<i>Correlations Between Number of Years Worked at Group Health Centre and Teamwork Constructs</i>						
	Total	Communication	Mutual Support	Situation Monitoring	Leadership	Structure
r-value	0.72	0.027	-0.109	0.027	0.226	0.226
p-value	0.488	0.798	0.294	0.798	-0.125	-0.125

There was no significant correlation between the numbers of years worked in a particular profession/discipline and attitudes. Nor was there a significant correlation between number of years worked at the Group Health Centre and attitudes.



## **Chapter Five: Discussion**

This chapter begins with discussion of the sample characteristics followed by discussion of the research questions. Each research question is addressed in light of the findings. Research limitations and implications for practice and research are presented.

### ***Sample***

The sample included 95 individuals who worked within specific disciplines within the broader field of health sciences and are employed as staff within a primary care health centre.

Demographic data revealed that the majority of the sample (91.6%) were female. Health professionals from twelve different disciplines as well as staff participated in the survey: clerical staff (n=22), registered nurses (n=21), registered practical nurses (n=10), nurse practitioners (n=5), and social workers (n=5). Interestingly, the number of clerical staff participants was higher than the number of nurses. Since nurses make up the largest number of health professionals (Orchard, 2010), one might assume that nursing would comprise most of the sample given that the setting was a healthcare facility. The Group Health Centre, however, employs almost equal numbers of clerical staff and nurses. This composition of the staff is reflected in the responses of each group to the survey. Each of the remaining disciplines had less than five participants; therefore, they were grouped together for identity protection. These participants included support workers, physiotherapists, registered dietitians, respiratory therapists, chiropractors, and kinesiologists. Participants from these disciplines totalled 54. The remaining 32 were technology staff, diagnostic staff, human resources, educators, and ‘other.’

The majority of non-staff participants were nurses (34.9%). This was expected because nurses make up the largest number of health professionals (Orchard, 2010). The nurses were clearly experienced in their roles as the mean score was 19.4 years of experience while the mean score of experience within this particular primary healthcare centre was 9.9 years.

### ***Attitudes about Multi-Disciplinary Teamwork***

The mean scores for the teamwork constructs ranged from 24.6-25.6. As noted earlier, the maximum possible score on the T-TAQ survey for each construct is 30. The mean scores in this study suggest that healthcare professionals and staff of the Group Health Centre had positive attitudes towards multi-disciplinary teamwork. This finding is important because, according to

Tosi and Mero (2003) positive attitudes are a key characteristic of high functioning healthcare teams. Positive attitudes related to teamwork have also been reported to be essential to ensuring effective team performance (Baker et al., 2005). Leggat (2007) explored the factors that contribute to team effectiveness using a teamwork survey. The sample included 222 members of the College of Health Service Executives. Analysis of traits showed that almost half of participants felt that attitudes contribute to team effectiveness. Kalizch, Weaver and Salas (2009) have stated that positive attitudes towards teamwork is the first step in achieving successful teamwork which is essential for patient safety and quality care.

According to the results of this study, Group Health Centre healthcare professionals and staff had positive attitudes towards all five constructs of teamwork. The construct with the lowest score was situation monitoring at 24.6. Situation monitoring is most closely linked with safe practice. Monitoring of performance prevents medical errors and adverse patient outcomes since it involves recognizing when more education or staffing is needed (Registered Nurses Association of Ontario [RNAO], 2012). A 1999 report by the Institute of Medicine pointed out that medical errors account for as many as 98,000 deaths annually. A positive attitude regarding identifying and dealing with errors is very important. Baker, Gustafson, Beaubien, Salas and Barach (2005) responded to this report by indicating that effective teamwork results in patient safety and a reduction in medical errors.

### ***The Attitudes of Registered Nurses***

There was no significant difference in the total scores of registered nurses compared to those of the rest of the sample. Registered nurses at the Group Health Centre had positive attitudes towards all five constructs of teamwork. This finding is different from what is found in the literature. Gardner (2005) explains that nurses have been challenged for having an approach to practice which does not include the collaboration of other disciplines. This has been recognized at professional, national, governmental, and World Health Organization levels. When patient care needs to be shared across another profession, nurses may struggle with collaborative directions (Orchard, 2010). Interestingly, in this study, registered nurses have reported positive attitudes towards multi-disciplinary teamwork which may perhaps indicate that nurses are moving beyond a profession-only practice focus and working more collaboratively. Gerrish (1999) did find that nurses generally demonstrate effective communication skills, understanding

of individual roles, appropriate use of skills, involvement in decision-making, and a sense of innovation in practice.

Perhaps the teamwork mean scores were positive and no significant difference was found because the Group Health Centre is an environment that promotes multi-disciplinary teamwork. It is well understood that successful multi-disciplinary teamwork is dependent upon many factors in addition to the characteristics of individual team members (Baker, Amodeo, Krokos, Slonim & Herrera, 2010). The Group Health Centre may provide the types of supports which are needed for effective multi-disciplinary teamwork and positive attitudes by employees, particularly registered nurses. For example, organizational support is reported to be a factor in the success of multi-disciplinary teams (Canadian Association of Community Health Centres, 2007; Registered Nurses Association of Ontario, 2012). There are many ways in which the organizational structure of the Group Health Centre may facilitate the achievement of the core constructs of teamwork which are identified on the T-TAQ and described by Baker, Amodeo, Krokos, Slonim and Herrera (2010): structure, leadership, situation monitoring, mutual support, and communication. The facilitators of teamwork demonstrated by the Group Health Centre are presented.

**Professional development.** The Group Health Centre has an infrastructure that supports education for registered nurses. For example, there are opportunities for scholarships, and education is encouraged. In particular, education is often supported through remuneration and position coverage (Group Health Centre, 2012). These benefits demonstrate organizational leadership. Amodeo, Krokos, Slonim and Herrera (2010) explain that, when organizational executives provide motivation for employees to continue their learning and seek professional development, leadership is often recognized. Guskey (2005) explained that professional development is one of the most effective ways to bring about positive change within an organization. To facilitate change, teamwork is important (Guskey, 2005). Involvement in professional development improves the skills and abilities of individuals and empowers them to be productive and open to change. Individuals who are empowered feel connected to the outcomes of their work and typically feel valued; therefore, they are likely to have positive attitudes than they might otherwise (McCarthy & Holbrook-Freeman, 2008). It is important that individuals from all levels of the organization have opportunities for professional development in order to support positive change and effective team functioning (Guskey, 1995).

**Physical space.** According to Oandasan et al. (2012), physical space is a factor in teamwork and may affect attitudes towards teamwork. The Group Health Centre has optimized its space to provide a physical comfort level for team members; an example is its nursing stations. Storage of equipment, furniture, and medical charts are housed off-site. There is a dedicated room for stationary supplies that reduces the amount of clutter at workstations and offices. Furthermore, a lounge is accessible to all staff for breaks and lunches, and several rooms can be reserved for meetings and teleconferences (J. McColeman, personal communication, March 4, 2013). Providing this physical space may be described as mutual support because the Group Health Centre is providing the tools and resources necessary for positive teamwork efforts (Baker, Amodeo, Krokos, Slonim and Herrera, 2010).

**Comprehensive services.** The Group Health Centre has a comprehensive nature. Services such as diagnostic testing, specialist care and other services such as diabetes management are available within the same facility (Group Health Centre, 2012). This model differs significantly from other provincial primary healthcare facilities. For example, Family Health Teams, Community Health Centres, and Nurse Practitioner-Led Clinics all function with a core team of healthcare professionals, including registered nurses, but they are not funded nor designed to include the comprehensive list of services offered through the Group Health Centre. From a broad perspective, the team structure in the Group Health Centre is extensive. This comprehensive nature supports team structure (The Ministry of Health and Long Term Care, 2013). Team structure influences team processes and organizes the way people function together (Baker, Gustafson, Beaubien, Salas, & Barach, 2005). Offering many different services in one organization may facilitate referring processes and result in positive attitudes towards multi-disciplinary teamwork.

**Role clarity.** Role clarity supports effective teamwork (Conn, Oandason, Creede, Jakubovicz, & Wilson, 2010). The Group Health Centre has maximized the use of an internal intranet to provide the name, contact information, picture identification, and role description of every health professional and staff member employed by the Group Health Centre to facilitate role clarity (J. McColeman, personal communication, March 4, 2013). Role clarity may also support the teamwork construct of communication.

**Communication.** According to Ellinson (2011) states that communication between team members can be improved through appropriate use of technology. Just as the Group Health Centre has optimized the use of the internal intranet as a communication tool, a new electronic medical record (EMR) is being implemented. Corporate leaders decided the EMR currently in use is outdated and should be enhanced.

These factors combined may explain, in part, why registered nurses at the Group Health Centre had positive attitudes towards all five constructs of teamwork as did the rest of the team and why no significant difference between the scores of the registered nurses and the other participants were found. Since most employees have worked at the Group Health Centre for almost ten years, it is likely that trust and team relationships have formed to further contribute to positive attitudes.

### ***The Attitudes of Clerical Staff in Comparison with Other Participants***

Clerical attitudes were positive for all constructs. However, there was a significant difference between the attitudes of clerical staff and the attitudes of the rest of the sample. This study builds on findings by Rowan (2008) that suggest that the attitudes of clerical staff are not as positive as those held by health professionals who belong to specific disciplines. In particular, in this study, the clerical staff reported significantly less positive attitudes for two constructs: situation monitoring and communication. Teamwork activities that could be used to enhance situation monitoring include tracking performance to ensure that work is occurring as expected and that proper procedures are followed. A possible explanation of this finding is that the majority of performance and procedure monitoring is performed by health professionals since they are directly involved in patient care delivery. Clerical staff may be unaware of the monitoring and tracking that occurs, or they may not agree with it, or they may not understand the idea that situation monitoring is a primary construct for effective teamwork. Another possible explanation of the lower scores for situation monitoring and communication could be the various hierarchical structures within health care centres. Bonacum (2004) stated that hierarchy inhibits people from effective communication because people may not feel comfortable to communicate openly in hierarchical settings. If clerical staff are not stating their opinions because they feel some sense of inadequacy, then negative hierarchical structures exist (Bonacum, 2004).

The clerical staff's less positive attitudes towards communication are consistent with Rowan's (2008) findings that health professionals communicate differently than staff members because they conceptualize the patient differently. These different communication attitudes between staff and health professionals may impact the quality of healthcare.

Thylefors (2011) has also described how hierarchy can negatively affect healthcare teams. While multi-disciplinary teamwork is a matter of joint problem-solving, equality among team members can be influenced by status and power distribution. The higher the salary, the greater the power differential is within the team (Thylefors, 2011). This finding suggests that clerical staff may not perceive themselves as high in the hierarchy as other health professionals. Thus, clerical staff may not consider themselves to be equals in problem solving. When someone is not considered an equal, this individual may hold a negative attitude towards multi-disciplinary teamwork (Almas & Odegard, 2010).

### ***Work Experience***

Although attitudes and attitude change are areas of investigation in contemporary social psychology, there is little research that specifically measures work experiences and attitudes in health care. In this research study, there was no significant correlation between work experience and attitudes towards multi-disciplinary teamwork. This finding does not support the VAM model described by George and Jones (1997) which explains that attitudes are related to past work experiences. Perhaps the staff of the Group Health Centre have had positive past work experiences or perhaps work experience simply does not influence attitudes towards interprofessional teamwork. Petty, Wegener, and Fabrigar (1997) reviewed empirical and conceptual studies on attitudes and found that past experiences have emotional and cognitive effects on attitudes. This finding may lead to the view that the emotional and cognitive components of work experience affect attitudes about multi-disciplinary teamwork. Tosi and Mero (2003) have stated that, if employees are happy and productive, they are likely to have positive attitudes about work. Because the Group Health Centre employees seemed happy and productive at work, it might be assumed that past work experiences did not affect their attitudes.

### ***Limitations***

Although the research demonstrated adequate power ( $B=0.83$ ), generalizability of the results to other primary healthcare agencies is not appropriate because of the small percentage of participants (Polit & Beck, 2010; Tosi & Mero, 2003). The study included a wide range of healthcare providers and staff but the size of some groups was small and physicians did not participate in the research. The study focused on the attitudes of healthcare providers and staff in a very specific context, the Group Health Centre in Sault Ste. Marie, ON.

The T-TAQ questionnaire has undergone preliminary psychometric testing, however further testing is required. Although items are well correlated within the constructs, the relationship of the items to the constructs has not been established through such testing as factor analysis.

### ***Implications for Research***

As indicated throughout this paper, studies about attitudes towards multi-disciplinary teamwork in primary care are lacking. Given that multi-disciplinary teamwork in healthcare continues to grow in importance, attitudes about teamwork comprise an integral component of our personal and professional lives. Additionally, such attitudes change just as situational stimuli and events influence attitudes and behaviours at different times. Based on these realities, it is vital that research be conducted in each of these areas (Association for Educational Communications and Technology [AECT], 2001). A better understanding of the different educational programs that can shape differing cultures in order for them to embrace multi-disciplinary teamwork is recommended. Personal and professional cultures as well as practical and academic approaches to service delivery likewise require further research (Almas & Odegard, 2010). The Canadian Association of Community Health Centres (2007) and The Registered Nurses Association of Ontario (2012) have stated that organizational support is a factor in the success of healthcare teams. As well, Guskey (1995) argued that, while organizational support brings about positive change and ultimately positive attitudes, little is known about the impact of organizational structure and support on attitudes towards multi-disciplinary teamwork. More research is needed for a better understanding.

Since professional cultures include varying political and economic structures, ideas, thoughts, and values, blending of such cultures can lead to healthcare teams that do not function effectively (Almas & Odegard, 2010). Research into the effects of combining different cultures on multi-disciplinary teamwork is recommended. A question also worth investigating is whether or not educational programs can influence different cultures to embrace multi-disciplinary teamwork. While no relationship between work experience and attitudes was found in this study and is potentially explained by the participants' overall satisfaction with their workplace, more research is needed to explore the relationship between workplace satisfaction, productivity, and attitudes towards teamwork. The impact that workplace satisfaction and positive multi-disciplinary teamwork has on quality of care is also an area in which ongoing research is recommended.

Registered nurses, in this study and others, have reported positive attitudes about multi-disciplinary teamwork. However, to date, there is little published work evaluating the factors that explain why nurses have positive (or negative) attitudes towards multi-disciplinary teams, or the impact of attitudes on team behaviour (Baker, Amodeo, Krokos, Slonim, & Herrera, 2010). Research is recommended in order to assess the influence of certain variables such as communication skills, understanding of roles, use of skills, decision making, and a sense of innovation in practice on nurses' attitudes towards multi-disciplinary teamwork.

### ***Implications for Practice***

Positive attitudes towards teamwork in a primary health centre are important in developing effective healthcare teams (Kalizch, Weaver & Salas, 2009). This study provides evidence that multi-disciplinary team members of the Group Health Centre (excluding physicians) have positive attitudes towards effective multi-disciplinary teamwork. Yet, this may not be the case in all healthcare settings or for all professions or staff members. Healthcare professionals and staff could benefit from education that focuses on the importance of teamwork in healthcare. The assumption is that education will have an impact on the professional culture and improve the attitudes of healthcare professionals and staff towards multi-disciplinary teamwork (Weber, 1994). If hierarchical structures are an issue, the whole team should be provided with more education about the importance of teamwork and the impact of hierarchy.



## ***Conclusions***

This study confirms that the multi-disciplinary team members of the Group Health Centre have positive attitudes towards multi-disciplinary teamwork. The registered nurses at the Group Health Centre do not have different attitudes about multi-disciplinary teamwork than do other health professionals and staff working at the Group Health Centre. Clerical staff do present differences when compared with the rest of the sample with respect to the constructs of situation monitoring as well as overall communication. Although studies have revealed that positive attitudes are important to the development of effective health teams (Kalizch, Weaver & Salas, 2009), further research is needed to determine which factors influence effective multi-disciplinary teamwork. Ultimately, teamwork is important because it improves patient outcomes (Kalizch, Weaver & Salas, 2009). Replication of this study at another primary care health centre would be beneficial to get a better understanding on how different environments and settings influence attitudes.

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## Appendix A

From: Pina Paluzzi  
Sent: Monday, May 8, 2012  
To: [paluzzi\\_p@ghc.on.ca](mailto:paluzzi_p@ghc.on.ca)  
Subject: Survey of Attitudes Towards Interprofessional Teamwork in a Primary Care Northern Health Centre.

Dear Colleague,

I am a graduate student of the School of Nursing at Laurentian University. I am studying attitudes towards interprofessional teamwork in a primary care health Centre (Group Health Centre).

Attitudes of the team members about interprofessional teamwork are key characteristics towards team functioning and can effect the quality and safety of patient care. This study is intended to provide information to improve one or more of the key components of teamwork; leadership, mutual support, communication, and/or structure.

The survey will only take about 10 minutes to complete. All of your responses are completely anonymous. No identifiable information will be associated with your responses in way.

Your participation is completely voluntary and would not adversely affect your position or any services you may receive through the GHC.

Survey link: <http://cr-dev/teamwork>

If you have any questions or concerns about the study, you can call me at (705) 759-5699 or Dr. Jean Dragon, [jdragon@laurentian.ca](mailto:jdragon@laurentian.ca), from Laurentian University Research Office, telephone # 705-675-1151 ext 3213.

Sincerely,

A handwritten signature in black ink, appearing to read 'Paluzzi RN'.

Pina Paluzzi  
Masters of Science in Nursing Candidate

## Appendix B

### TeamSTEPPS™ Teamwork Attitudes Questionnaire Administration Instructions

Please complete the following questionnaire by placing a check mark [✓] in the box that corresponds to your level of agreement from *Strongly Disagree* to *Strongly Agree*. Please answer every question and select only one response for each question. The questionnaire is anonymous, so please do not put your name or any other identifying information on the questionnaire.

[Optional]: On the last page you will find questions about your background and experience. Please provide your responses to each question in the space provided. Thank you for your participation.

# TeamSTEPPS



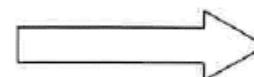
## TeamSTEPPS™ Teamwork Attitudes Questionnaire

The purpose of this survey is to measure your impressions of various components of teamwork as it relates to patient care and safety.

**Instructions:** Please respond to the questions below by placing a check mark (✓) in the box that corresponds to your level of agreement from *Strongly Disagree* to *Strongly Agree*. Please select only one response for each question.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>Team Structure</b>						
1.	It is important to ask patients and their families for feedback regarding patient care.					
2.	Patients are a critical component of the care team.					
3.	This facility's administration influences the success of direct care teams.					
4.	A team's mission is of greater value than the goals of individual team members.					
5.	Effective team members can anticipate the needs of other team members.					
6.	High-performing teams in health care share common characteristics with high-performing teams in other industries.					
<b>Leadership</b>						
7.	It is important for leaders to share information with team members.					
8.	Leaders should create informal opportunities for team members to share information.					
9.	Effective leaders view honest mistakes as meaningful learning opportunities.					
10.	It is a leader's responsibility to model appropriate team behavior.					
11.	It is important for leaders to take time to discuss with their team members plans for each patient.					
12.	Team leaders should ensure that team members help each other out when necessary.					

PLEASE CONTINUE TO THE NEXT PAGE





## TeamSTEPPS



		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>Situation Monitoring</b>						
13.	Individuals can be taught how to scan the environment for important situational cues.					
14.	Monitoring patients provides an important contribution to effective team performance.					
15.	Even individuals who are not part of the direct care team should be encouraged to scan for and report changes in patient status.					
16.	It is important to monitor the emotional and physical status of other team members.					
17.	It is appropriate for one team member to offer assistance to another who may be too tired or stressed to perform a task.					
18.	Team members who monitor their emotional and physical status on the job are more effective.					
<b>Mutual Support</b>						
19.	To be effective, team members should understand the work of their fellow team members.					
20.	Asking for assistance from a team member is a sign that an individual does not know how to do his/her job effectively.					
21.	Providing assistance to team members is a sign that an individual does not have enough work to do.					
22.	Offering to help a fellow team member with his/her individual work tasks is an effective tool for improving team performance.					
23.	It is appropriate to continue to assert a patient safety concern until you are certain that it has been heard.					
24.	Personal conflicts between team members do not affect patient safety.					

PLEASE CONTINUE TO THE NEXT PAGE



		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>Communication</b>						
25.	Teams that do not communicate effectively significantly increase their risk of committing errors.					
26.	Poor communication is the most common cause of reported errors.					
27.	Adverse events may be reduced by maintaining an information exchange with patients and their families.					
28.	I prefer to work with team members who ask questions about information I provide.					
29.	It is important to have a standardized method for sharing information when handing off patients.					
30.	It is nearly impossible to train individuals how to be better communicators.					

Please provide any additional comments in the space below.

**Thank you for your participation!**



## Appendix C



### APPROVAL FOR CONDUCTING RESEARCH INVOLVING HUMAN SUBJECTS

Research Ethics Board – Laurentian University

This letter confirms that the research project identified below has successfully passed the ethics review by the Laurentian University Research Ethics Board (REB). Your ethics approval date, other milestone dates, and any special conditions for your project are indicated below.

TYPE OF APPROVAL / New <input checked="" type="checkbox"/> / Modifications to project / Time extension	
<b>Name of Principal Investigator and school/department</b>	Pina Rita Guido and Roberta Heale (School of Nursing), Laurentian University
<b>Title of Project</b>	Attitudes of Registered Nurses and Health Professionals Towards Interprofessional Teamwork in a Primary Care Health Centre
<b>REB file number</b>	2012-04-17
<b>Date of original approval of project</b>	June 11, 2012
<b>Date of approval of project modifications or extension (if applicable)</b>	
<b>Final/Interim report due on:</b>	June 11, 2013
<b>Conditions placed on project</b>	Final report due on June 11, 2013

During the course of your research, no deviations from, or changes to, the protocol, recruitment or consent forms may be initiated without prior written approval from the REB. If you wish to modify your research project, please refer to the Research Ethics website to complete the appropriate [REB form](#).

All projects must submit a report to REB at least once per year. If involvement with human participants continues for longer than one year (e.g. you have not completed the objectives of the study and have not yet terminated contact with the participants, except for feedback of final results to participants), you must request an extension using the appropriate [REB form](#).

In all cases, please ensure that your research complies with [Tri-Council Policy Statement \(TCPS\)](#). Also please quote your REB file number on all future correspondence with the REB office.

Congratulations and best of luck in conducting your research.

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Susan James, Acting chair  
Laurentian University Research Ethics Board